

## Article

# The Triple Blow Effect: Retailing in an Era of Disasters and Pandemics—The Case of Christchurch, New Zealand

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**Abstract:** In the last two decades, the retail sector has experienced unprecedented upheaval, having severe implications for economic development and sustenance of traditional inner-city retail districts. In the city of Christchurch, New Zealand, this effect has been exacerbated by a series of earthquakes in 2010/2011 which destroyed much of the traditional retail precinct of the city. After extensive rebuild activity of the city's infrastructure, the momentum of retailers returning to the inner city was initially sluggish but eventually gathered speed supported by increased international visitation. In early 2020, the return to retail normality came to an abrupt halt after the emergence of the COVID-19 pandemic. This study uses spending and transaction data to analyze the compounding impact of the earthquake's aftermath, shift to online shopping, and the retail disruption in the Christchurch central retail precinct because of COVID-19. The findings illustrate how consumers through their spending respond to different types of external shocks, altering their consumption patterns and retail mode (offline and online) to cope with an ever-changing retail landscape. Each event triggers different spending patterns that have some similarities but also stark differences, having implications for a sustainable and resilient retail industry in Christchurch. Implications for urban retail precinct development are also discussed.

**Keywords:** COVID-19; consumption displacement; retail; online shopping; economic development



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## 1. Introduction

The effects on society and businesses from crises and disasters are often felt unevenly across space and time [1]. This has wide-reaching effects throughout the economy, including the retail sector [2]. Retail facilities are a critical element of economic development and quality of life in urban spaces [3], and their importance in post-disaster recovery is well recognized [2]. With respect to the impact such crises have on consumer behavior within the retail sector, several research streams can be identified [4–8]. One stream examines the effect of different types of crises and disasters on consumer purchasing behavior. For example, consumer preparedness and stockpiling behaviors pre-hurricane and product availability post-hurricane have been studied [9]. Examining the recurring extreme weather phenomenon of El Niño, Alatrística-Salas et al. [10] found that individuals change their purchasing patterns as a consequence of the climatic event. Other studies delve into consumer

knowledge, risk perceptions and risk reduction strategies associated with purchasing behavior during the Avian flu [11]. A burgeoning second research stream examines the impact of disasters on marginalized consumer groups, such as refugees [12] and war veterans [13], in relation to consumption practices and shopping patterns. The third, and most recent, research stream examines consumption displacement via retail spending [8,14,15] and panic buying [14–16] following the COVID-19 pandemic, including temporary or longer-term shifts to online purchasing. A recent study [17] suggests that crises such as the COVID-19 can trigger both a decline and subsequent recovery in retail areas, having implications for sustainable retail area management, economic resilience, and development.

The proliferation of pandemic related studies on consumer behavior [14–16,18] attest to the importance of the topic and its implications for the retail sector in terms of response strategies, including supply chain management, sustainable retail infrastructure development, and managing consumer in-store experiences. However, existing studies have tended to use cross-sectional data to examine consumer and/or retailer responses at one point in time in relation to one specific disaster. While the study by Hall et al. [15] covered both the effects of earthquakes and the COVID-19 pandemic on retail spending, the dynamic changes facing the retail sector in that location was not fully explored. A significant knowledge gap therefore remains in relation to retail spending and consumer behavior across multiple disasters, taking on a longitudinal perspective of retail sector recovery. This is a topic of great significance with respect to the locational or spatial resilience of retailing, given that the frequency and severity of crises and disasters are increasing [19–22]. Thus, this study examines the effect of multiple crises and disasters on retail spending in the city centre of Christchurch, New Zealand, while also considering the rapid rise of online shopping which is also often positioned as a response to such crises [23]. The main research questions are:

RQ1: Are there similarities and differences in consumer spending behavior across different types of external shocks?

RQ2: What expenditure categories are affected by different types of external shocks?

RQ3: What is the magnitude of the shift that occurs from offline to online retailing?

The study identifies similarities and differences in retail spending across three different external shocks, pinpointing to shifts in spending in specific retail categories as well as identifying transition points in consumer patronage of offline and online retailing modes. In this way, in-situ consumer behavior can be understood in relation to crises and disasters, offering a longitudinal consumer perspective of retail rebound and recovery. However, the significance of this research is applied farther than locally, as such studies are extremely important from an international perspective because they may potentially indicate how the experience of one crisis or disaster affects subsequent experiences of another crisis or disaster and the accompanying response by business, consumers, and policy makers [5–7,24]. Next, the theoretical lens of the study is presented.

## 2. Literature Review

### 2.1. Consumer Behavior during Crises and Disasters

Crises and disasters affect both consumers and retailers inducing, for example, precautionary buying behaviors and retailers' proactive hoarding, respectively [25]. Such behaviors exemplify the effect of slow-onset disasters (e.g., cyclones and typhoons), public health emergencies (e.g., pandemics), but also related to sudden and unexpected disasters (e.g., flash floods and earthquakes). These behaviors affect retail market recovery [25]. While studies on panic and precautionary buying exist, empirical studies in particular focus on consumers' suspicions and responses to retailers' rising prices [26]. Others investigate the antecedents of panic-buying and stock-piling behaviors [9]. However, both hoarding by retailers and panic-buying by consumers do not necessarily lead to better retail recovery post-disaster [25]. Existing studies on consumer behavior during crises and disasters reveal that panic buying is a response to environmental stimuli (e.g, social norms, media influence, and the perceived severity of the event, among others) and reflective thinking related to

fear of shortages and anxiety about the volatility of product prices [27]. However, these studies fail to identify the magnitude of the change in consumer behavior in comparison to business-as-usual situations. They also do not identify which product categories become less or more desirable.

### *2.2. Retail Modes and Consumer Online Shopping Behaviour*

During COVID-19, online shopping has grown as a consumer trend worldwide. A survey by UNCTAD [28] on consumers from nine emerging and developed economies showed that the biggest winners are providers of ICT/electronics, gardening/do-it-yourself, pharmaceuticals, education, furniture/household products, and cosmetics/personal care categories. Consumers in both emerging and developed economies have postponed larger expenditures, with those in emerging economies focusing more on essential products. Tourism and travel sectors have suffered the strongest decline, with average spending per online shopper dropping by 75% [28]. Overall, the e-commerce sector saw a “dramatic” rise in its share of all retail sales, from 16 percent to 19 percent in 2020 [29]. However, there is limited evidence on the magnitude of the shift from offline to online retail modes by consumers. Understanding this shift is critical for sustainability and resilience of retailing activities in city centres.

### *2.3. Retailing in the City Centre and Place Making*

The city centre remains an important part of place making [30]. City centre shopping, restaurants, and cafés, together with several other elements, continue to contribute to the creation of a lively atmosphere and attractive place for residents and visitors [30]. From a broader place perspective, city centre retailing is, therefore, about more than just the immediate sales, as important as they are, but it is also about how retail centres constitute an important element of place which contributes to city place brand [31] and therefore the attraction and retention of human and economic capital. While some assert the demise of the physical store [32], with implications for city centre attractiveness, urban development, and long-term survival; others find that consumers still want the experience provided by physical retail stores [33] as part of an “omni-channel retailing” strategy. As such, retailing that integrates the physical store complemented by an online shopping experience, in addition to more traditional public and private market spaces, can perhaps contribute to retain the vibrancy and attractiveness of city centres.

The challenges faced by retailers in city centres are numerous, but these can be exacerbated by crises and disasters [34]. Comparing eight different cities following Hurricane Katrina, Pearson et al. [34] found inconsistencies in retail recovery across seven of the 10 retail categories considered and across the different cities. Thus, given the unevenness of recovery in time and space it is clear that there is no “one size fits all” retail recovery strategy for cities following disasters. This research therefore attempts to understand the shifts in retail spending across different product categories and disasters in the context of Christchurch, New Zealand.

### *2.4. Retailing in Christchurch, New Zealand*

The long-established inner city retail precinct of the city of Christchurch, New Zealand, was largely destroyed after a series of earthquakes in 2010/11. Parts of the central business district (CBD), where approximately 80–90% of all buildings have been or will be demolished, remained cordoned off for more than two years after the earthquake having a severe impact on retail activities [35]. Research on consumer behaviour following the Canterbury earthquakes [35] showed that consumers focus shifted to fulfilling utilitarian needs immediately after the earthquake. Given the significant infrastructure damage to water and electricity, it was not surprising that bottled water sales increased by 320% and the other product category that experienced a sharp rise in sales was batteries/torches and fire lighting equipment (e.g., matches, lighters and solid fuels) [35]. In a survey of 102 organizations following the Canterbury earthquakes, of which 18 were from the retail

sector, Kachali et al. [36] found that 73% and 60% closed temporarily after the 2010 and 2011 earthquakes, respectively. However, 13% closed permanently after the 2011 earthquake. Before the 2010 earthquake, retail trade in Christchurch showed a similar growth rate to the national average [37].

Following the earthquakes, the ensuing rebuild of the Christchurch central city has created a completely new business and retail precinct with a significant hospitality component that seeks to attract domestic and international visitors [38]. The reconstruction of the city itself contributed to substantial central city consumer demand. For example, from 2013 onwards retail and hospitality growth surged ahead of the national growth rates until 2016. For example, from 2012 to 2016 retail and hospitality sales increased by 34% compared to the national average of 24% [37]. However, despite the rebuild, and possibly even because of the rapidly changed physical and service environment, substantial issues remain over the long-term viability of the Christchurch city centre for retailing. Such concerns, as with many CBDs, revolve around the relative attractiveness of the city centre compared to other competing urban spaces, as well as the way in which other elements of the urban system, such as the arts, culture, events, heritage, and sport, are complimentary to city retail [38–42].

Nevertheless, concerns over the decline of city centres are not just a New Zealand phenomenon and are common to many mid- to large size cities that have historically had CBDs [30]. The health of the retail sector is a central element of such concerns because of the economic relationships that exist between retail and co-located businesses. In addition to specific inter-industry relationships, a strong retail presence in a city centre is usually regarded as a vital element of place attractiveness and promotion, particularly because of its capacity to attract visitors and their expenditure both within and outside of the sector [30,43]. The notion of a physical retail-less city therefore potentially has enormous ramifications for the economic wellbeing of a wide range of co-located businesses from other sectors and for the relative attractiveness of cities as a place to live. These issues have long been an important part of place and urban competition. However, the Christchurch case provides important insights into the response of central city retailing not only to external competition from suburban malls and online shopping, but also to other crises and disasters and can therefore potentially offer insights into the resilience of city centre retailing.

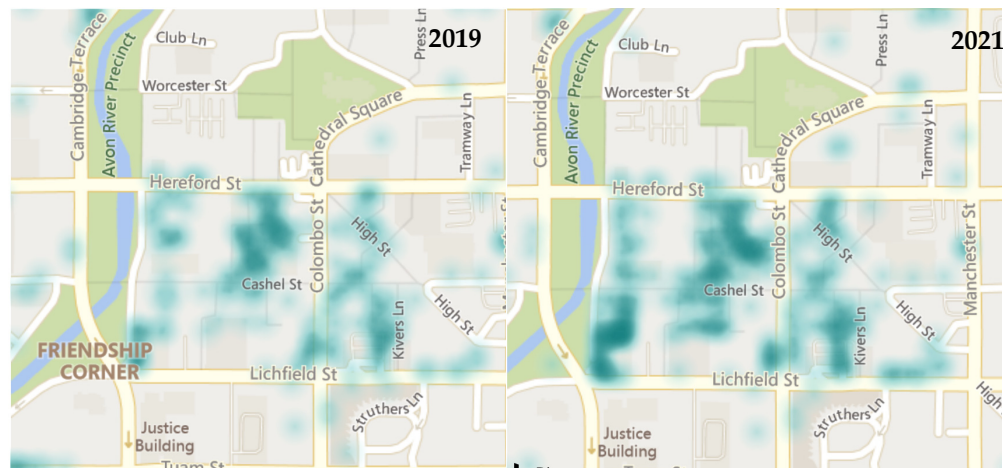
Retail activity is dispersed throughout cities with reasons for its location reflecting a complex and interacting range of factors, many of which relate to historical legacies [44].

The Christchurch CBD consists of an outer ring, known as ‘The four avenues’, comprising some mixed residential and commercial segments as well as a large park (approximately 600 ha) and an inner, more dense area housing most of the CBD’s retail, hospitality, and office properties. This inner area is enclosed by the Avon River, Manchester Street and Tuam Street and covers approximately 32 hectares (see Figure 1). It was this inner area that incurred most of the damage from the 2010/11 earthquakes and where most of the rebuild activity has taken place. As a result of the post-earthquake rebuild activity, the Christchurch CBD can now be considered New Zealand’s newest central city with a mixed-use precinct consisting of retail, office, residential, hospitality, and lodging activity. The success of the redevelopment up to early 2020 is evident by continued decreasing vacancy rates in office and retail activity to similar levels at pre-earthquake [45]. The central city continues to experience an increase in pedestrian traffic, with pedestrian traffic counts per hour increasing by 6.4 percent in 2021 compared to 2020 (see Figure 1) [46]. Figure 1 reveals the increase in pedestrian traffic through increased density patterns within and in close proximity of the central city retail precinct.

The total number of employees that work in the central city has increased from 28,848 in 2012 to 42,146 in 2020 [46]. This increase is supported by the new office, retail, and hotel stock being completed within the area. Similar to other cities that have undergone city centre redevelopment following disruptive events such as crises and disasters, the retail developments in the Christchurch city centre was positioned as vibrant urban spaces that would stimulate economic development [38]. While this might have been true post-quake, evidence on changing consumer behaviour, which indicates a gradual shift to online



shopping and the effects of the COVID-19 pandemic, suggests that the city centre and its retail sector might be facing challenges that undermine the resilience displayed in the immediate post-quake period [47,48]. To give credence to some of these observations, we use retail spending data to ascertain the effects external change on consumer behaviour.



**Figure 1.** Christchurch Central City Pedestrian Traffic, 2019 & 2021. Source: Christchurch City Council, 2021 [46]. Reprinted with permission from Christchurch City Council, 2021.

### 3. Data and Findings

To assess the changing retail environment within Christchurch due to the continued emergence of disasters and pandemics, the response by the retail industry is revealed using an explanatory approach of annual Statistics New Zealand Business Demography data and monthly retail spending data sourced from Verisk, New Zealand [49]. The combined use of these data enables a holistic view of how retail trade has been able to adapt and respond to the challenges faced. The key challenges this study considers are the localized, once-off impact of a disaster, the continued disruption caused by the emergence of online shopping, and the COVID-19 pandemic with its government enforced lockdowns and movement restrictions. These shocks are referred to as the triple-blow effect. The similarities and differences in retail spending are identified to better understand the changing and evolving nature of consumer behaviour.

Retail within Central Christchurch has been significantly affected by the 2011 earthquake which damaged a substantial portion of the historic Christchurch inner-city retail precinct. As a consequence, large core areas of the inner city were inaccessible to the public as rebuilding and repair work was carried out which resulted in a stepwise reopening of the area over multiple years. The rebuilding of the retail precinct included several alterations to the pre-earthquake infrastructure, including narrowed roads to implement a number of cycle ways and the addition of several parking buildings. This resulted in an almost complete rebuilding of the area. The evolution of retail within the central city took place within a competitive market, during a time when competing nodes were well established. The trend in the number of retail business units within the central city between 2000 and 2021 reveals the magnitude of the damage as well as the response as new retail businesses enter the market (see Figure 2).

The retail environment in the central city demonstrated growth from 2000 up to 2008 when the effects of the Global Financial Crisis (GFC) in terms of consumer expenditure and business costs caused a decline of over 100 retail business units. The earthquake series during 2010/11 caused a collapse in the inner-city retail sector, with retail business unit numbers plummeting from 480 to 110. Although severely affected business that were able to continue to operate during this time slowly transformed from then onward.

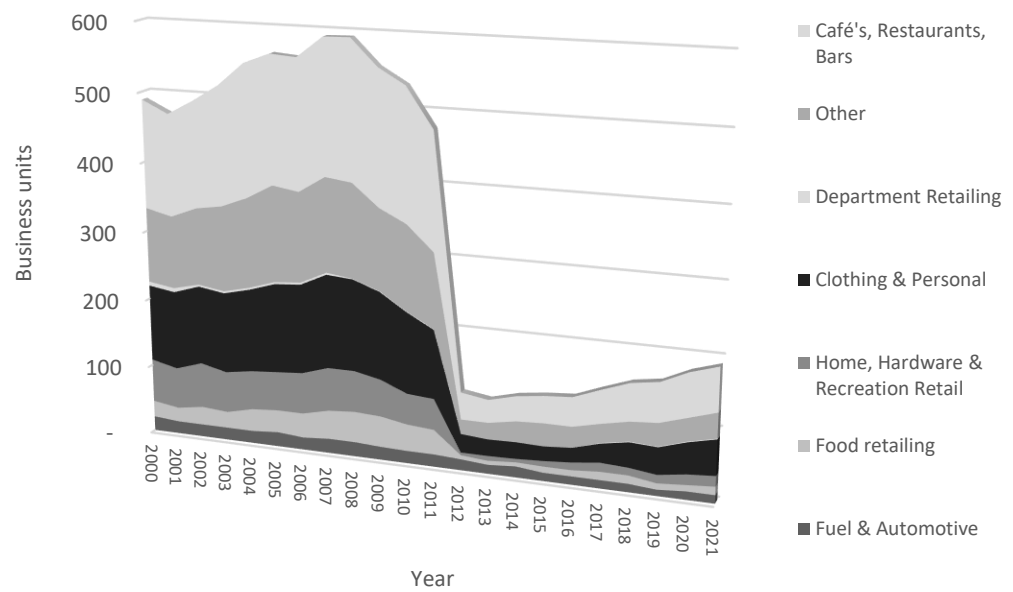


Figure 2. Christchurch Central, Business Units, 2000–2020. Source: Statistics New Zealand, 2021 [50].

Over time, the ability of the central city to attract visitors, both locally and internationally, meant that spending within the area slowly increased and the city centre was gaining market share within Christchurch. Figure 3 shows the increasing spending on retail in the central city, sourced through Verisk New Zealand, from 2016 onwards.

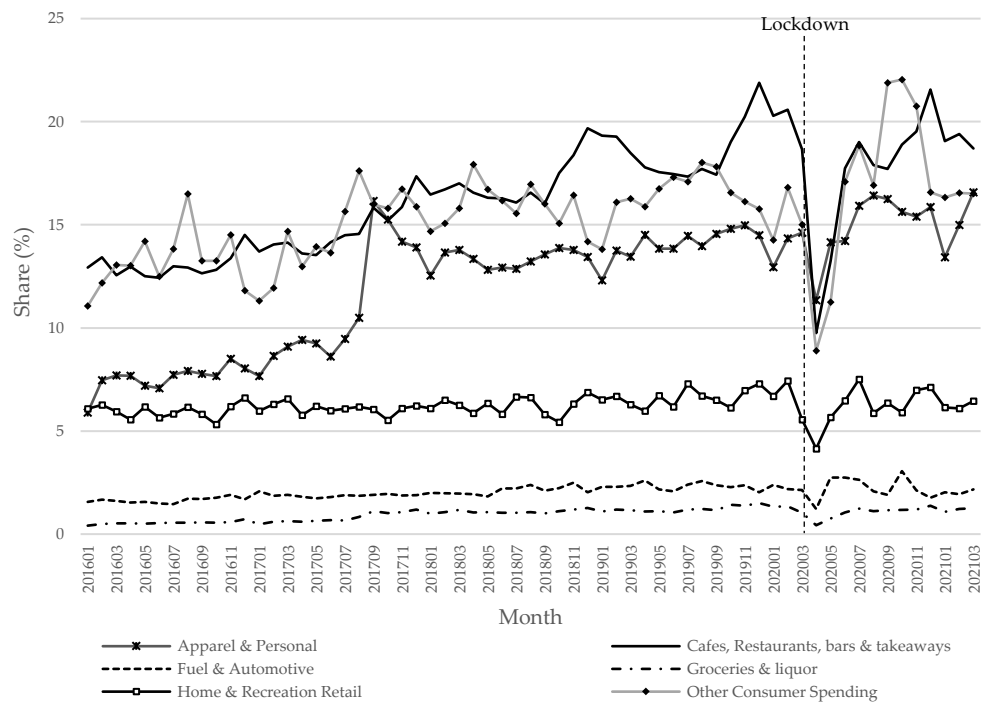


Figure 3. Share of Central City Retail Spending to Christchurch, 2016–2021. Source: Verisk New Zealand, 2021 [49].

The city centre showed a particular renaissance in three retail types and an ability to increase market share. These include apparel and personal retail, hospitality, and other specialized retailing. The increased activity in these three retail areas reveals that the market, supported by consumers, was realigning the key retail activities prevalent in the central city. The growth in spending on hospitality and entertainment, supported by local

residents returning to the inner-city area for entertainment purposes, as well as rapidly increasing domestic and international visitor numbers suggests that hospitality represents a key driver of retailing within Christchurch. This is also supported by New Zealand government research that show that shopping is one of the top tourist activities with retail accounting for 34.3% of all tourist purchases [51].

The emergence of the COVID-19 pandemic in early 2020, was expected to have a significant negative impact on retailing, given the strict lockdown regulations imposed by the New Zealand government [15]. The initial lockdown was particularly hard on the hospitality industry [52] and the ability of the industry to bounce back remained uncertain during the lockdown [15,53]. Additionally, the effect of the lockdown on CBD retail activity remained uncertain given that working from home had become the standard for many employees [54].

The 12-months following the first hard lockdown in March 2020, reveals that the central city continued to attract consumer retail spending and increasing its share of retail spending in the three main retail types continues to increase. The pace in which this growth takes place is best viewed in context of other major economic nodes within the city. After the earthquakes, a big shift in retailing moved to the suburbs and, as a result, strengthened the suburban shopping centres [55,56]. This suggests that the central city had to compete with these strengthened decentralized retail nodes in attracting market share.

A comparison of spending between the Christchurch central city and three other main suburban retail nodes (Hornby, Papanui, Riccarton) reveals the pace at which the central city had been able to increase retail market share (see Figure 4). By early 2019, the central city had surpassed the three largest suburban retail nodes, to become the main retail node within the city. This trend was not interrupted by the COVID-19 enforced lockdown and a quick rebound in retail spending in the central city ensued. Furthermore, the trends did not seem to be disrupted at all by the lockdown, with the share of the central city continuing to improve in mid-2021.

The result of increasing retail spending in the Christchurch central city is not reflected in other major cities in New Zealand, pointing towards an ability to be resilient during disasters and pandemics. Auckland CBD pedestrian counts continuously declined during the first year of the pandemic with the first COVID-19 enforced lockdown and lower visitor numbers affecting retail spending [57,58].

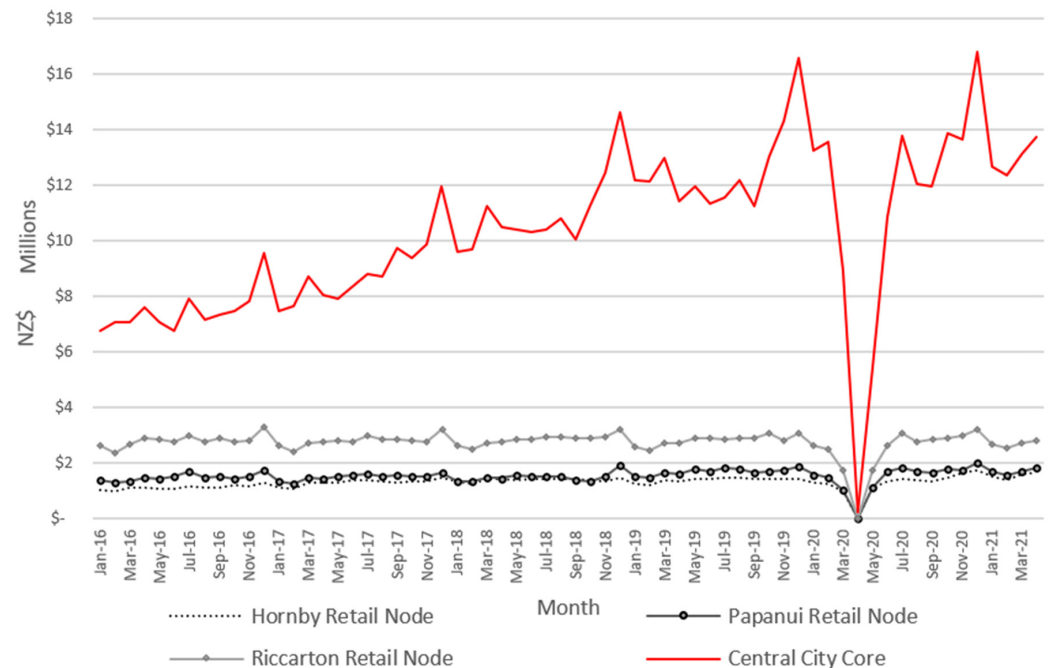
The strengthening in retail spending for the central city is likely due to a repositioning of retail activity that is located in the node, in particular the continued growth in hospitality and entertainment activity, although these sectors are particularly affected by COVID-19 lockdowns that restrict gatherings for public health reasons (see Figure 5).

### *3.1. Shocks Are a Regular Occurrence*

The changing retail environment in the entire city of Christchurch can be characterized by several distinct phases. During the pre-earthquake phase retail trade volumes measured in NZ\$ can be seen as rising in a fairly linear fashion, although in the brief period just prior to the first earthquake in 2010 growth seemed to have plateaued, a phenomenon which has been observed elsewhere too and is most likely related to the global financial crisis [59]. The subsequent earthquakes destroyed a significant part of the traditional inner-city retail precinct of Christchurch, which was cordoned off for clean-up and rebuild activity for a prolonged amount of time [38]. City-wide retail volumes dipped only briefly, as retail activity moved rapidly from the inner-city to suburban shopping centres. Total retail spending after the earthquakes shows that the initial reduction in retail spending quickly rebounded and was driven by stockpiling of essentials during the initial period after the earthquake [55], and over time normal shopping patterns emerged. In the years that followed, retail volumes recommenced their pre-earthquake growth rates until the emergence of the COVID-19 crisis. Over the same period, accommodation and food services retailing appeared to be more strongly affected and declined substantially between 2009 and 2012 (Figure 6) before increasing strongly for the city.



**Figure 4.** Comparison of Retail Spending for Major Nodes in Christchurch, 2016–2021. Source: Verisk New Zealand, 2021 [49].



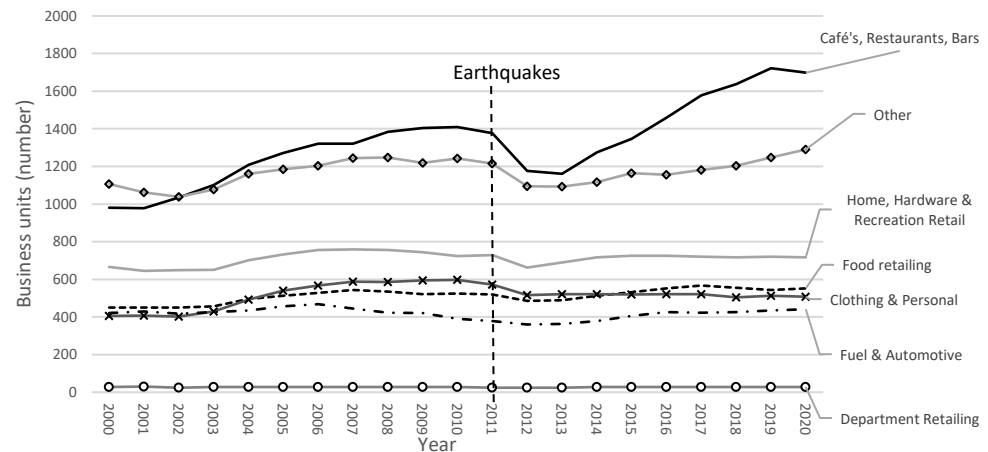
**Figure 5.** Spending on Hospitality & Entertainment per Major Node, 2016–2021. Source: Verisk New Zealand, 2021 [49].

### 3.2. Emergence of Online Shopping

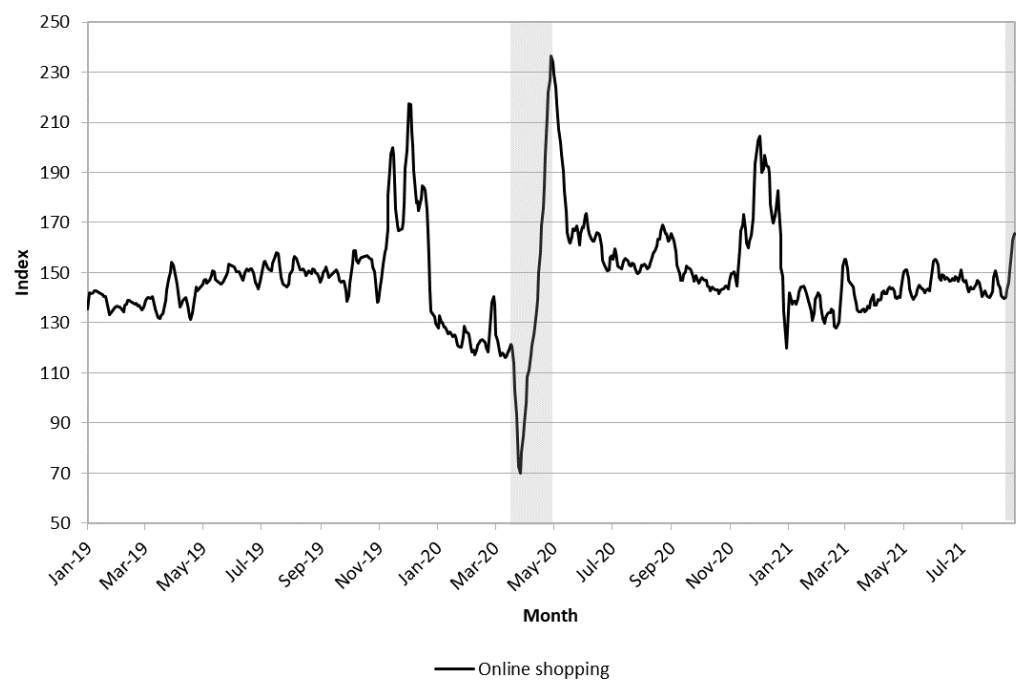
An additional component to the changing face of the contemporary retail environment is the emergence of online retailing. International studies have shown that there is a general trend toward a shift in retail spending toward online expenditure at the expense of traditional brick and mortar stores [60,61]. Generally, it can be expected that this significant shift in retail spending patterns from traditional brick and mortar shops to online retailers is replicated in the city of Christchurch. It is interesting to note how the online retail sector



fares over the course of the pandemic. Data for the online retail turnover in the city of Christchurch was not available; however, online shopping data for all of New Zealand from early 2019 are shown in Figure 7.



**Figure 6.** Christchurch Retail Business Units, 2000—2020. Source Statistics New Zealand, 2021 [50].



**Figure 7.** Online retail trend in New Zealand; January 2019–July 2021. Source: Derived from Kerr & Couchman, 2021 [62].

Aside from typical online retail patterns in the form of an overall increasing trend and Christmas related increasing retail volumes toward the end of 2019 and 2020, what is of note in this graph are the surges associated with lockdowns as a result of policy responses to increasing COVID-19 infections. Such lockdowns occurred from 26 March 2020 to 13 May 2020 (nationwide) and to a lesser extent from August to September 2021 (Auckland only). In both cases, after an initial brief drop, a strong surge in online retail activity can be observed as the lockdowns continued. While these data relate to New Zealand as a whole, rather than Christchurch, it is clear that lockdown induced shifts in retail activity benefit the online retail sector and thus come to the detriment of traditional brick and mortar retailers, in this case retailers located in the newly rebuilt Christchurch central city retail precinct.

### 3.3. Similarities and Differences across Shocks

Retailing trends in Christchurch reveal how shocks have different effects on the spatial distribution of activity. Firstly, where the earthquake represents a localized negative impact on retailing, the transition in retail resulting from the COVID-19 pandemic reveals a more wide-spread impact on spending across the city and on retail types.

The retail trading environment over the two decades from 2000 to 2020 in Christchurch and its inner city was marked by a stark difference in patterns, which can be attributed to the events discussed in this paper. The changing face of the retail landscape can be clearly observed through a time-series of business units within the industry between 2000 and 2020 (Figure 6). The localized effect of the earthquake on the Christchurch Central City affected retail activity significantly more, due to the destruction of buildings and infrastructure, compared with other retail nodes within the city where the destruction was less severe.

In comparison, the COVID-19 enforced lockdown affected the entire city and beyond (Figure 4), with limited retail trade activity due to the restrictions placed by the government to manage the spread of COVID-19. The impact that these events had on the retail landscape of the central city is in stark contrast due to their nature. A second difference is related to timeframes in recovery. The disruption to brick-and-mortar retail from online retailing is continual, while the results suggest that localized and regional disruptions similar to earthquakes and pandemics further support the growth of online retailing. Additionally, the recovery in retail spending after an earthquake suggests a slow recovery for the affected area while competing commercial nodes benefit from the displaced consumer retail spending. Finally, retail spending patterns during a pandemic is significantly affected by government policy on mobility. It is evident that during times of movement restriction, retail spending is lower; however, this quickly changes when the mobility restriction is removed. A sharp recovery in retail spending is observed. To complement these differences, Table 1 summarizes further differences between these events. The table refers to trends visible in Figures 3–5.

**Table 1.** Comparison of retail trade activity due to earthquakes and COVID-19 in Christchurch Central City.

Disruptive Event Stage	Earthquakes	COVID-19	Online Retail
Pre-event	<ul style="list-style-type: none"> <li>Declining retail trade business activity resulting from GFC (−3.3% annual decline in businesses).</li> </ul>	<ul style="list-style-type: none"> <li>Strong growth in new business activity after rebuilding (+8.7% annual growth).</li> </ul>	<ul style="list-style-type: none"> <li>Provides an alternative competitive marketplace for retail spending.</li> </ul>
During event	<ul style="list-style-type: none"> <li>Destruction of the central city and closure of most retail businesses.</li> <li>Movement of retail activity to the suburban nodes.</li> </ul>	<ul style="list-style-type: none"> <li>Closure of all non-essential retail activity throughout the country except health-related retail and supermarkets.</li> </ul>	<ul style="list-style-type: none"> <li>The market share of online retail rise rapidly during localized and regional disruptions.</li> </ul>
Aftermath	<ul style="list-style-type: none"> <li>Slow increase in spending as businesses return or open in the affected area.</li> <li>Mainly new businesses in clothing and personal retail as well as hospitality.</li> </ul>	<ul style="list-style-type: none"> <li>Immediate access to retail activity once lockdown lifted.</li> <li>High spending due to pent-up demand.</li> <li>Growth in hospitality and clothing and personal retail stores.</li> </ul>	<ul style="list-style-type: none"> <li>A slow decline in online shopping is evident as consumers return to pre-disaster spending patterns.</li> </ul>

The impacts of the shock on the number of retail businesses within the central city reveal the resilience in hospitality as well as clothing and apparel businesses within the area. It is likely that these retail types have been able to absorb the impacts of the shocks and are able to withstand the rise of online shopping.

### 3.4. Visitor Spending

The Christchurch retail sector has been strongly affected by a post-earthquake rise in domestic and international visitors. While international visitor numbers dropped more significantly than domestic visitors in the earthquake aftermath, the subsequent continuous rise in visitation related retail spending was stronger in domestic visitor spending compared to international visitor spending (see Figure 8). While international visitation to Christchurch generally increased post 2012, it has been noted that a surge in the arrival of Chinese tourists in particular had contributed disproportionately to this trend [63].



Figure 8. Annual visitor spending in Christchurch Source: MBIE [64].

During the initial post-earthquake period, domestic visitor spending increased to about 200% the international spending (Figure 9) but has since subsided to around 150%, mostly due to increased international visitor numbers. With the beginning of the COVID-19 pandemic international visitor numbers significantly dropped once again, leading to decreased retail spending which affected the retail precinct disproportionately.

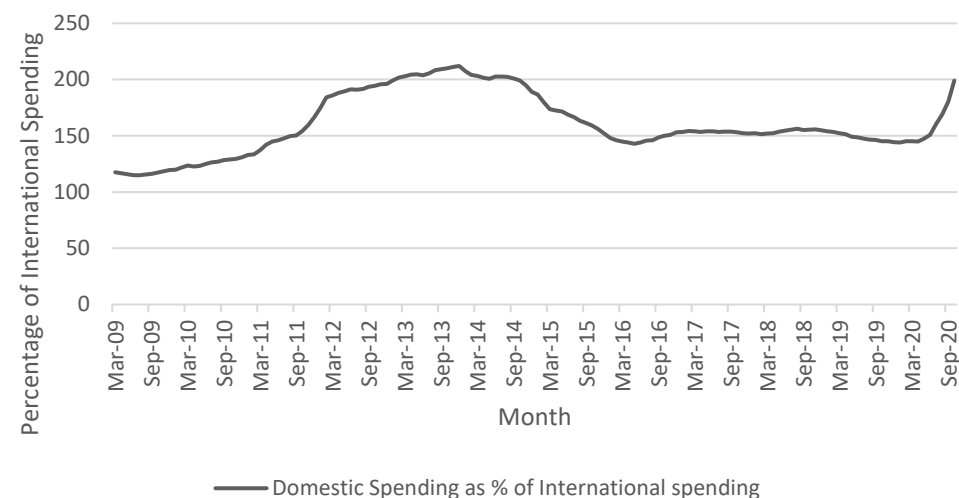


Figure 9. Domestic visitor spending as percentage of int. visitor spending Source: MBIE [64].

The Ministry of Business, Innovation and Employment (MBIE) consumer spending dashboard confirms that for New Zealand consumers, the large drop in consumer spending during the first lockdown was due to mobility restrictions [65]. The parallel rise in household savings indicates that demand was deferred as opposed to permanently depressed. However, it was noted that consumer spending may not reach pre-pandemic levels for a while [65]. Recent domestic spending for the Canterbury region for the period February 2021 to November 2021 shows an inconsistent pattern in comparison to the previous two years, with a rise from 2.7% in 2 February to a drop to 40.1% by 5 April, followed by a rise to 7.8% by 21 November. Likewise, international spending for the same period and for the same dates show a rise from 15.1% to a drop to 77.5% followed by a further drop to 78.2% by 21 November [64].

#### 4. Discussion

City centres and their retail infrastructure continue to be an important facet of quality of life for residents and a magnet of city attractiveness for both domestic and international visitors. Within a broader urban development strategy, city centres remain a focal point of economic activity, contribute to place vibrancy and help communicate the lifestyle and culture of a locality. As suggested by the findings, disasters offer the opportunity to revitalize retail infrastructure in a way that it can be integrated better with other forms of economic development and urban living. In particular, retail infrastructure can offer a better value proposition for consumers when integrated with other infrastructure development such as new buildings and attractions, including the development of pop-up and temporary retail and event spaces which were extremely successful post-earthquake [41]. This can be enhanced further if post-disaster economic development also considers how the place can be more pedestrian friendly and link to active and public transport networks [66].

Contrary to those who suggest the demise of the physical store, the study finds that the city centre is increasing its share of total spending compared to other major retail nodes in the city. This seems to suggest that Christchurch has recovered from the loss in attractiveness that the city centre suffered through the 2010/2011 earthquakes. However, the city remains sparsely populated, suggesting that inner city residents would not suffice as a target market to support the new retail infrastructure. The strong focus on hospitality, hotels, entertainment, and events in the redevelopment plans [41] can lead to the city becoming a weekend only destination for residents of Christchurch. The rise in hospitality spending as a share of total city centre spending provides some evidence of this effect. Christchurch region residents seem to be treating the city centre as a tourist attraction rather than as a place to live. In the long-term this may have a detrimental impact on the image of the city, given that the market is driving hospitality as the main anchor tenant.

From a public policy perspective, retail sector revitalization following disasters and pandemics involves more than just rebuilding and improving attractiveness of the infrastructure for residents and visitors but also how such spaces re-establish the social fabric of urban living. Of particular importance is how retail facilities fit with other communal institutions such as workplaces and recreation facilities in retaining or shaping a new identity for city centres. Thus, retail sector recovery processes should be integrated and aligned with the broader macro-level urban recovery process [2] following disasters and pandemics. Interestingly, in the case of Christchurch, the immediate post-earthquake period was characterized by extensive use of events and short-term/pop-up activities to draw people into the city and generate atmosphere and 'buzz' [41]. However, the opportunity to undertake these activities declined over time. To maximize land rent values, properties were rebuilt and redesigned to attract higher returns for their owners. While the earthquakes have provided an opportunity to rebrand and reposition the city of Christchurch as a vibrant and new place [40], longer-term success will be dependent on how retail facilities and other infrastructure contributes to the city's social and economic fabric.

Retailing in Christchurch has changed because of disasters. Although the market has been able to adapt to these shocks, the results reveal how hospitality has played a key part in

the transition of retail back into the city centre. The increasing share of hospitality within the city suggests that the shopping experience goes beyond the purchase of goods. Hospitality has strengthened and remained a key anchor tenant, while apparel, leisure, and specialized retailing has shown similar growth which is likely attributed to the complimentary use between these retail types.

## 5. Conclusions

Large segments of the global retail sector have experienced a challenging environment over the last two decades. Online shopping has emerged as the primary competitor for traditional brick and mortar stores. For inner city retailers, this development has been exacerbated by decreasing accessibility and higher fixed costs compared to their competitors in suburban shopping areas. Alongside crises, disasters and pandemics have contributed to changing consumer behaviour, with mobility restrictions during the COVID-19 pandemic affecting access to physical stores in city centres such as Christchurch. While several studies [10,13,18] have examined the impacts of one type of disruptive event on consumer behaviour, this study evaluates the combined effects of a rise in online shopping, multiple earthquakes, and the COVID-19 pandemic on retail spending. Such studies are potentially increasing in importance to help understand retailing and the position of retail in urban centres given the growing frequency and severity of disasters.

The city of Christchurch has not been spared these effects and has had to struggle with the additional challenges of rebuilding its inner-city retail precinct after a series of earthquakes in 2010/11. The stepwise reopening of the rebuilt CBD necessitated the re-attraction of former retail tenants in the face of these other existing challenges. This study has evaluated the constraints that have encumbered brick and mortar retail revitalization in an urban retail environment that has been almost destroyed by a natural disaster. This revitalization was supported by the arrival of some cornerstone international brands, a refocusing on hospitality and other 'Amazon-proof' (at least in the short-term) retailers such as supermarkets, pharmacies, and certain apparel stores and the rapid increase in international visitor arrivals. Most recently, the COVID-19 pandemic has exerted additional strain on inner-city retailing in the form of lockdowns, compounded by the decline in domestic and absence of foreign tourists. The results of this study, however, indicate that inner city retail is somewhat resilient to different disasters as long as other economic indicators such as consumer savings, employment, and GDP are robust. While the pace and magnitude of retail recovery as evidenced by retail spending might differ from one disruptive event to the next, the overall trend seems to suggest that in the long-run, retail spending returns to pre-disaster levels.

The trends from the Christchurch central city reveal that brick and mortar retailing in an era of disasters remains relevant. The results of our study identify key differences in retail spending between these events related to the timing in recovery, with the ongoing ascendancy of online retail representing a persistent disruption to urban retail, while earthquakes and pandemics represent short-term disturbances that further increase the trend towards online shopping. Hospitality, apparel, leisure, and grocery retailing appear to strengthen within the re-emergent city, playing a key role in post-disaster recovery and appear to withstand the growing popularity of online retail spending. While the overall threat of online retail continues to exert pressure on traditional retailers, there is a notable number of sectors within the retail industry that has exhibited significant resilience in the face of this increasing competition. Urban planners and policy makers will benefit from considering the shift in these emerging retail patterns.

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